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## IDS Flag Clearance for Application 10605239

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Information

Content	Mailroom Date	Entry Number	IDS Review	Last Modified	Reviewer
M844	2005-09-22	24	Y <input checked="" type="checkbox"/>	2006-06-12 16:56:46.0	EBurns
M844	2004-04-05	16	Y <input checked="" type="checkbox"/>	2005-08-31 11:18:47.0	CNguyen1
EIDS.	2004-03-26	15	Y <input checked="" type="checkbox"/>	2005-08-31 11:18:47.0	CNguyen1
M844	2003-10-06	14	Y <input checked="" type="checkbox"/>	2005-08-31 11:18:46.0	CNguyen1
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[First Hit](#)      [Previous Doc](#)      [Next Doc](#)      [Go to Doc#](#)**End of Result Set**☐ [Generate Collection](#) [Print](#)

L2: Entry 1 of 1

File: PGPB

Jan 13, 2005

DOCUMENT-IDENTIFIER: US 20050010341 A1  
TITLE: REMOTE DIAGNOSTICS DEVICE (RDU)

Pre-Grant Publication (PGPub) Document Number:  
20050010341

Summary of Invention Paragraph:

[0003] Light emitting diodes (LEDs) on-board an electronic control unit (ECU) are used to indicate a finite number of faults on diagnostic units. Such diagnostic units are used for indicating faults in electronic systems (e.g., vehicle adaptive braking systems including an antilock braking system (ABS), transmission control systems, engine control systems, etc). An operator may reset and/or auto-configure the ECU (e.g., via a switch). In this sense, the LEDs are used as a first step in diagnosing a failure in an ABS. However, recent trends in locating ABS/automatic traction control (ATC) ECUs have tended to make on-board LEDs non-functional to the user in certain applications (e.g., where LEDs are hidden or difficult to see due to ECU location/orientation). In addition, although LEDs are not always used or desired by buyers, manufacturers tend to include on-board LEDs on all ECUs to accommodate the buyers that do utilize the LEDs. The cost of on-board LEDs introduces unnecessary burdens on ECU manufacturers and buyers in cases where LEDs are not used by the buyers.

Summary of Invention Paragraph:

[0009] In another aspect, a reset switch communicates with the microcontroller for at least one of clearing the diagnostic message from the microcontroller and resetting an ECU communicating with the data bus.

Detail Description Paragraph:

[0030] One or more discrete LEDs is provided for each of the possible faults detected, so that the mechanic servicing the vehicle can immediately tell, by examining the status of the LEDs on the RDU 12 which of the components of the system is malfunctioning. Since many of the malfunctions sensed by the aforementioned diagnostics are of a transient or temporary nature, and which are eliminated when the system powers down upon vehicle shutoff, a nonvolatile random access memory in the ECU 12 is provided to store the faults detected by the aforementioned diagnostics. Therefore, upon powerup when the vehicle is started the same LEDs are again activated as were activated immediately before shutdown and are transmitted to the RDU 12. A fault reset switch 26 (see FIG. 5) on the RDU 12 is used for clearing (resetting) the ECU 14 (and the light emitting diodes) when the vehicle has been serviced and the faults no longer exist. It is also contemplated that the fault reset switch 26 be used for causing the ECU 14 to cycle through a self-configuration mode.

Detail Description Paragraph:

[0031] With reference to FIGS. 2 and 3, the RDU 12 is an electronic, diagnostic tool for locating ABS/ATC faults. The RDU 12 includes the ten LEDs 22 and the fault reset switch 26 (see FIG. 5). The LEDs 22 are used for indicating that the RDU 12 is receiving power, that a communication link is established between the RDU 12 and

the ECU 14, a position of a suspected issue in the ABS/ATC, and a suspected issue with a suspected component or its wiring. In one embodiment, the fault reset switch 26 is a magnetic reset switch that is responsive to a magnet being passed within a certain distance of the RDU 12.

Detail Description Paragraph:

[0037] The fault reset switch 26 is used to manually send a clear (reset) message to the ECU 14 when an ABS fault is corrected. Similarly, the fault reset switch 26 is used for sending a self-configuration command to the ECU 14 if, for example, the ECU 14 is configured incorrectly. In one embodiment, the reset switch 26 is sealed within the RDU 12 and is magnetically responsive. More specifically, the reset switch 26 is activated by placing a magnet within a range causing a magnetic response in the magnetic reset switch 26. An activation of the magnetic response switch 26 for a first predetermined time, for example, greater than one (1) second but less than about twenty (20) seconds clears (resets) the current fault in the ECU 14 using a reset command. Therefore, all of the LEDs 22 turn-off. A longer activation of the magnetic reset switch 26 (e.g., if the magnet is held within the range for activating the switch for a second predetermined time, for example, greater than about twenty (20) seconds but less than about sixty (60) seconds) causes the self-configuration command to be transmitted to the ECU 14. The self-configuration command causes the ECU 14 to enter a reconfiguration mode. In this embodiment, no action is performed if the magnetic reset switch 26 is activated for longer than about sixty (60) seconds. Furthermore, it is contemplated in this embodiment that the reset command is a standard command and the self-configuration command is a proprietary command; however, other embodiments, in which any command is either a standard command or proprietary command and is transmitted as a function of the fault reset switch 26, are also contemplated.

CLAIMS:

3. The remote diagnostic unit as set forth in claim 1, further including: a reset switch, communicating with the microcontroller, for at least one of clearing the diagnostic message from an ECU and causing the ECU to enter a self-configuration mode.
15. The remote diagnostic communication interface as set forth in claim 10, further including: a reset switch, communicating with the means for receiving and interpreting the standard diagnostic message, for at least one of selectively clearing an ECU and selectively causing the ECU to enter a reconfiguration mode.
16. The remote diagnostic communication interface as set forth in claim 15, wherein: the reset switch is activated in response to a magnet; the ECU is cleared when the reset switch is activated for a first period of time; and the ECU enters the reconfiguration mode when the reset switch is activated for a second period of time.
19. The system for diagnosing an electrical system as set forth in claim 18, further including: a reset switch, communicating with the microcontroller, for one of clearing the diagnostic message from an ECU and transmitting a self-configuration command to the ECU.
28. The method for remotely displaying a fault status as set forth in claim 25, further including: activating a reset switch for at least one of clearing the electronic control unit and causing the electronic control unit to enter a reconfiguration mode.
29. The method for remotely displaying a fault status as set forth in claim 28, wherein the reset switch is a magnetic switch, the activating including: passing a magnet within a range for causing a response in the magnetic switch.

[First Hit](#)      [Previous Doc](#)      [Next Doc](#)      [Go to Doc#](#)**End of Result Set**☐ [Generate Collection](#) [Print](#)

L3: Entry 1 of 1

File: PGPB

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DOCUMENT-IDENTIFIER: US 20050010341 A1  
TITLE: REMOTE DIAGNOSTICS DEVICE (RDU)

Pre-Grant Publication (PGPub) Document Number:  
20050010341

Summary of Invention Paragraph:

[0010] In another aspect, the diagnostic message indicates a status of an ABS ECU on the vehicle.

Detail Description Paragraph:

[0039] Although the present invention has been described with reference to an ABS ECU, it is to be understood that other embodiments in which the remote diagnostic unit indicates a fault status of other ECUs on the vehicle (e.g., a transmission ECU, an engine ECU, etc.) are also contemplated.

## CLAIMS:

4. The remote diagnostic unit as set forth in claim 1, wherein the diagnostic message indicates a status of an ABS ECU on the vehicle.

[Previous Doc](#)      [Next Doc](#)      [Go to Doc#](#)